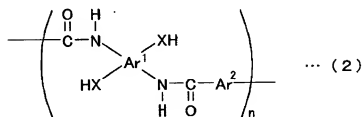
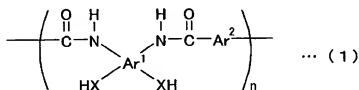


CLAIMS:

1. A film formed of a polybenzazole precursor, wherein the film is produced by solidifying the polybenzazole precursor oriented in a given direction by the application of a magnetic or electric field, said polybenzazole precursor having a repeating unit shown by the following chemical formula (1) or (2),



10

wherein X is any one selected from the group consisting of a sulfur atom, an oxygen atom, and an imino group; Ar<sup>1</sup> and Ar<sup>2</sup> are selected from aromatic hydrocarbon groups; and n is an integer of 10 to 500.

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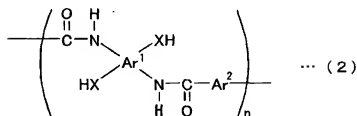
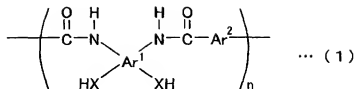
2. The film according to claim 1, wherein the given direction corresponds to the direction of the thickness of the film.

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3. The film according to claim 1, having at least one of optical, magnetic, mechanical, thermal and electrical anisotropies.

25

4. A method of producing a film formed of a polybenzazole precursor, the polybenzazole precursor having a repeating unit shown by the following chemical formula (1) or (2),



wherein X is any one selected from the group consisting of a sulfur atom, an oxygen atom, and an imino group; Ar<sup>1</sup> and Ar<sup>2</sup> are selected from aromatic hydrocarbon groups; and n is an integer of 10 to 500, comprising:

preparing a liquid containing the polybenzazole precursor;

spreading the liquid in the form of a film;

applying a magnetic or electric field to the spread liquid so that the polybenzazole precursor in the spread liquid is oriented in a given direction; and

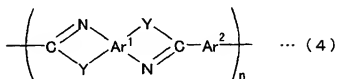
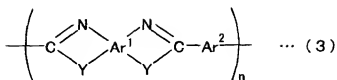
solidifying the spread liquid after the application of the magnetic or electric field.

5. The method according to claim 4, wherein said liquid either is a solution of the polybenzazole precursor prepared by dissolving the polybenzazole precursor in a solvent or is a molten state of the polybenzazole precursor.

6. A film formed of a polybenzazole, wherein the film is produced by solidifying the polybenzazole oriented in a given direction by the application of a magnetic or electric field.

7. The film according to claim 6, wherein said polybenzazole has a repeating unit shown by the following

chemical formula (3) or (4).



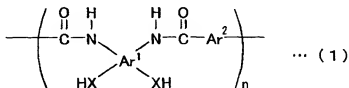
wherein Y is any one selected from the group consisting  
 5 of a sulfur atom, an oxygen atom, and an imino group; Ar<sup>1</sup> and  
 Ar<sup>2</sup> are selected from aromatic hydrocarbon groups; and n is an  
 integer of 10 to 500.

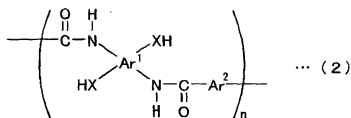
8. The film according to claim 6, wherein the given  
 10 direction corresponds to the direction of the thickness of the  
 film.

9. The film according to claim 6, having at least one of  
 optical, magnetic, mechanical, thermal and electrical  
 15 anisotropies.

10. A method of producing a film formed of a  
 polybenzazole, comprising:

preparing a liquid containing a polybenzazole precursor,  
 20 as a precursor of the polybenzazole, the polybenzazole  
 precursor having a repeating unit shown by the following  
 chemical formula (1) or (2),





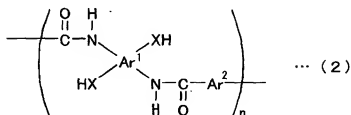
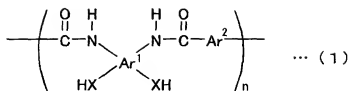
- wherein X is any one selected from the group consisting of a sulfur atom, an oxygen atom, and an imino group; Ar<sup>1</sup> and Ar<sup>2</sup> are selected from aromatic hydrocarbon groups; and n is an integer of 10 to 500;
- 5 spreading the liquid in the form of a film;
- applying a magnetic or electric field to the spread liquid so that the polybenzazole precursor in the spread liquid is oriented in a given direction;
- 10 chemically converting the polybenzazole precursor in the spread liquid into the polybenzazole after the application of the magnetic or electric field; and
- solidifying the spread liquid after the chemical conversion of the polybenzazole precursor into the
- 15 polybenzazole.

11. The method according to claim 10, wherein said liquid either is a solution of the polybenzazole precursor prepared by dissolving the polybenzazole precursor in a solvent or is a

20 molten state of the polybenzazole precursor.

12. A method of producing a film formed of a polybenzazole, comprising:

25 preparing a liquid containing a polybenzazole precursor, as a precursor of the polybenzazole, the polybenzazole precursor having a repeating unit shown by the following chemical formula (1) or (2),



wherein X is any one selected from the group consisting of a sulfur atom, an oxygen atom, and an imino group; Ar<sup>1</sup> and Ar<sup>2</sup> are selected from aromatic hydrocarbon groups; and n is an integer of 10 to 500;

- spreading the liquid in the form of a film;
- applying a magnetic or electric field to the spread liquid so that the polybenzazole precursor in the spread liquid is oriented in a given direction;
- solidifying the spread liquid after the application of the magnetic or electric field so as to produce a precursor film, as a film of the polybenzazole precursor; and
- chemically converting the polybenzazole precursor contained in said precursor film into the polybenzazole.

13. The method according to claim 12, wherein said liquid either is a solution of the polybenzazole precursor prepared by dissolving the polybenzazole precursor in a solvent or is a molten state of the polybenzazole precursor.

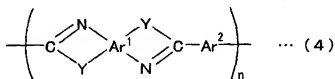
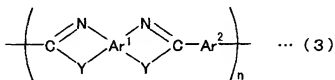
14. A method of producing a film formed of a polybenzazole; comprising:
- preparing a liquid containing the polybenzazole;
  - spreading the liquid in the form of a film;
  - applying a magnetic or electric field to the spread

liquid so that the polybenzazole in the spread liquid is oriented in a given direction; and

solidifying the spread liquid after the application of the magnetic or electric field.

5

15. The method according to claim 14, wherein said polybenzazole has a repeating unit shown by the following chemical formula (3) or (4),



10

wherein Y is any one selected from the group consisting of a sulfur atom, an oxygen atom, and an imino group; Ar<sup>1</sup> and Ar<sup>2</sup> are selected from aromatic hydrocarbon groups; and n is an integer of 10 to 500.

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16. The method according to claim 14, wherein the liquid either is a solution of the polybenzazole prepared by dissolving the polybenzazole in a solvent or is a molten state of the polybenzazole.

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